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# Weekly Payroll Jobs and Wages in Australia methodology

Reference period Week ending 17 September 2022

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Released 13/10/2022

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The following sections have been updated in this release:

- How data are processed: pay frequency graph in Imputation subsection

## How data are collected

### Source

The Australian Taxation Office (ATO) receives payroll information from employers with Single Touch Payroll (STP) enabled payroll and accounting software each time the employer runs its payroll. The ATO provides selected employer and job level data items from the STP

system to the ABS to produce statistics.

## Scope and coverage

The scope and coverage of these estimates are defined and constrained by the characteristics of the data sources from which these estimates are produced. As such, users should note that not all jobs and wages in the Australian labour market are captured within these estimates.

### Payroll jobs

Payroll jobs as reported to the ATO through STP are in scope of these estimates. All payroll jobholders regardless of age or Australian residency status are included. Persons reported via STP must hold either a Tax File Number (TFN) or an Australian Business Number (ABN).

A payroll job is a relationship between an employee and their employing enterprise, where the employee is paid in the reference week through STP-enabled payroll or accounting software and reported to the ATO. Where an employee is paid other than weekly, the established payment pattern is used to include payroll jobs paid in weeks outside the reference week.

Payroll jobs reported via STP exclude owner managers of unincorporated enterprises (OMUEs), which are more prevalent in the Construction and Agriculture, forestry and fishing industries.

Employers with 20 or more employees (large employers) commenced transition to STP reporting on 1 July 2018. Employers with less than 20 employees (small employers) began transitioning to STP on 1 July 2019. Any reporting concessions that were made available for small employers ended on 30 June 2021. At the time of this release, almost all large employers and eligible small employers are reporting through STP.

In addition, payroll jobs reported in the Defence Industry (ANZSIC Class 7600) are excluded from these estimates by the ABS to better align with other [Labour estimates](https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/6150.0~Oct%202019~Main%20Features~Australian%20Labour%20Account%20Concepts~4) (<https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/6150.0~Oct%202019~Main%20Features~Australian%20Labour%20Account%20Concepts~4>).

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### Wages

The STP reported wages associated with each payroll job are in scope of these estimates. Wages are gross amounts, prior to taxation and deductions and include:

- salary payments and allowances,
- labour hire payments and foreign income,

- the value of payments in kind (where a fringe benefit amount is recorded),
- bonuses where they are reported in the same field as normal payments.

The total wages concept broadly aligns with the [Australian System of National Accounts \(/methodologies/australian-system-national-accounts-methodology/2020-21\)](#) (ASNA) definition of wages and salaries, with the exception of payments to employee's superannuation and severance and termination payments which are excluded.

More specifically, the following STP reported income items are included in the production of wages estimates;

- gross income amount (including bonuses),
- allowance income,
- fringe benefit amount (reportable, taxable),
- fringe benefit amount (reportable, tax exempt),
- other income (not specified),
- foreign income amount including tax exempt income,
- Community Development Employment Project income.

## Other data sources

The STP data are enhanced through combining other administrative data held by the ABS (also sourced from the Australian taxation system).

Sex, age and residential geography variables are primarily sourced from Client Register data (supplied by ATO to the ABS as part of the transfer of Personal Income Tax data). Sex can only be sourced from Client Register data. When age and residential geography are not available from Client Register data, they are sourced from STP data. The ABS receives annual snapshots of de-identified Client Register data from the ATO, for use in the production of statistics.

Industry of activity, sector and employment size variables of the employing business are sourced from the ABS Business Register (ABSBR).

Variables from the Client Register and the ABSBR are updated periodically on different timings. See the Updating characteristic variables section of [How data are processed \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-17-september-2022#how-data-are-processed\)](#).

## How data are processed

To produce estimates from STP data, several processes and treatments are applied.

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## Calendarisation

The STP data are reported on a cash basis (the time when the payment was made) rather than an accrual basis (the time when the payment was earned). Production of real time estimates require the conversion of STP data from a cash basis to an accrual basis. This is done through a “calendarisation” method. This method breaks down all records to a common period (daily), which allows the data to be aggregated and analysed for any longer period (e.g. weekly).

The calendarisation method includes the following steps:

- calculation of the periodicity (payment frequency) using the start and end date of the payment period,
- calculation of a daily pay rate by dividing the total payments by the payment frequency (for example, weekly pay is divided by seven), and
- an adjustment to the periodicity for a job to exclude the days before commencement (or after termination), where the start or termination date for a job occurs within the payment period.

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## Accrual of end of financial year payments

Towards the end of the financial year, unadjusted STP data includes higher than usual week-to-week changes in total wages paid. Some employers report lumped fringe benefits tax (FBT) payment amounts for eligible employees at the end of the financial year. This is most evident in the Health care and social assistance industry. To reduce the reporting variability introduced by these payments, the ABS has determined and applied an adjustment factor to accrue reported FBT amounts across the relevant financial year wages series. It is applied to all records which include reportable FBT amounts, not just those in the Health care and social assistance industry. It will be periodically revised to ensure it remains current.

This treatment complements the existing calendarisation methodology and is consistent with the definition of wages and salaries used in the Australian System of National Accounts. More information about employer reporting of FBT is available from the ATO website.

This adjustment methodology is not applicable to other extraordinary payments (such as bonuses) where they are included with the wages data in the period they are paid. Unlike reportable FBT amounts, bonuses are not currently readily distinguishable from the wages component of the STP job level dataset and can be paid at any time. Further information on bonuses can be found in the Seasonality section of [Data variability and revisions \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-17-september-2022#data-variability-and-revisions\)](https://www.abs.gov.au/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-17-september-2022#data-variability-and-revisions) and in the [Seasonality spotlight: 2021 year-](#)

[end \(/articles/seasonality-spotlight-2021-year-end\)](#) article.

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## Imputation

In addition to cash reporting, extracted STP payment data for a specific week cycle may be incomplete due to:

- different business reporting habits,
- different pay frequencies, and
- the lag between the reference week and the release of estimates.

To produce reliable weekly statistics, an imputation method is applied to account for incompleteness. Imputation includes the following considerations:

- Imputation is not applied where no established pattern of payment exists to enable forward extrapolation. For example, a small proportion of employees paid on an ad hoc basis.
- If an employee has not yet had payment data reported and they have not been flagged for termination, it is assumed that their payment status is consistent with their previous reporting record. The previous calculated daily rate will be imputed for the current period.
- If an employee has no payment data for a second consecutive pay period, it is assumed that their employment has been terminated. No further forward imputation is applied. Imputed data remains in place until 16 weeks have elapsed, to account for any lags in business reporting.
- No imputation is applied for new employees without historical payment information, until a pattern can be determined. This means that there can be a lag before a new payroll job appears in the data (after their initial pay period). The lag is longer for new jobs with employers who have less frequent payment and reporting periods. No adjustment is applied to account for this new job lag.

STP reported data can take several months to be fully complete at a specific reference date, due to infrequent and quarterly STP reporters. In August 2021, the lag between the reference and release date was extended to around 26 days to allow for the receipt of more complete data (around 90%), resulting in an imputation rate of around 10% in the latest reference week. Some periods see greater variation in reporting patterns and seasonality, which can affect the level of imputation and subsequent revisions when more complete data is received (see [Data variability and revisions \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-17-september-2022#data-variability-and-revisions\)](#) section for more information). In this release, the imputation in the reference week was around 8% for payroll jobs and 8% for total wages.

### Imputation retention period

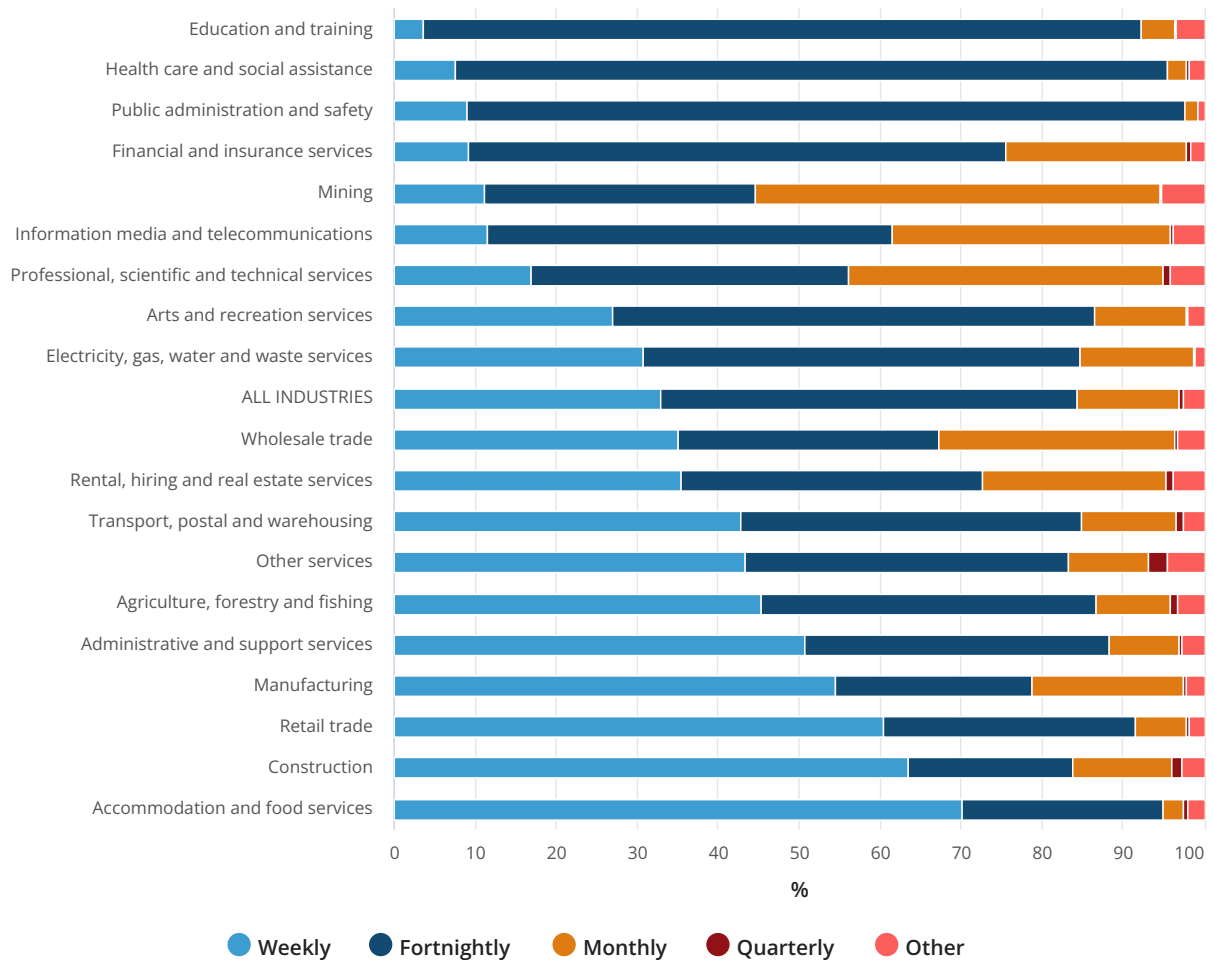
From the 7 October 2021 release, the imputation retention threshold was updated from eight pay periods to 16 weeks for all jobs. As more complete data is received and historical imputation is removed, larger than usual revisions may occur in estimates around 16 weeks prior to the latest week. This is more evident during brief periods of labour market shock, which were likely to experience slight over-imputation.

### **Pay frequency influence**

In each reference week, employer reported data is included for almost all weekly paid employees, most employees paid fortnightly and some employees paid monthly. For example, an employer with a fortnightly payroll will only report payments in alternate weeks in the STP dataset. As at the end of March 2022, the data indicated that 33% of employees are paid weekly; 51% are paid fortnightly; 13% are paid monthly; and 3% are paid quarterly or infrequently.

While a fortnightly pay frequency is the most common amongst all industries, the dominant pay frequency varies across industry (seen in the graph below), which can affect the level of imputation for each industry in any given week.

## Proportion of reported pay frequency by industry



Ranked by ascending weekly pay frequency, for the week ending 26 March 2022.

## Aggregation

Once STP data are converted via the calendarisation method and imputation is applied, the data are aggregated for each week (ending Saturday) to produce:

- total payroll jobs, which is the average of the seven days of payroll job counts, and
- total wages, which is the sum of all daily wages for the week, except for employees who

cease a job during the week where only the wages for the days worked are included.

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## Suppression

To protect the confidentiality of individuals, data are subject to suppression where a small number of individuals contribute to an individual estimate (such as sub-state indexes). A detailed index may be suppressed throughout the time series, if it is produced from consistently low numbers of individuals.

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## Creation of indexes

Estimates are supplied as indexes to provide an indication of movements rather than level estimates. In order to compare changes over time, the week in which Australia recorded its 100th confirmed coronavirus case (i.e. the week ending 14 March 2020) is used as the reference period for constructing the indexes and given an index value of 100.0. These indexes differ from the ABS' suite of price indexes (including the Wage Price Index) which measure changes in price over time unaffected by quality or quantity and should not be directly compared.

Indexes allow comparison of data between two points in time, the points in time can be adjacent (this week and the previous week) or many weeks apart. Movements in the index from one period to another can be expressed as either points or percentage change and these are rounded to one decimal place. The following example illustrates the method of calculating changes in index points and percentage changes between any two periods:

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	Index number
Week ending 06 February 2021 for SA4: Melbourne - Inner	99.1
Less week ending 09 January 2021 for SA4: Melbourne - Inner	94.8
Change in index points	4.3
Percentage change	$4.3/94.8 \times 100 = 4.5\%$

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The following example illustrates the method of calculating a recovery percentage change between any two periods:



	Index number
National payroll jobs index for week ending 14 March 2020	100
Less National payroll jobs index for week ending 18 April 2020	91.6
Payroll jobs lost from 14 March index value (denominator)	8.4
National payroll jobs for week ending 9 January 2021	97.6
Less National payroll jobs index for week ending 18 April 2020	91.6
Recovery index points (numerator)	6.0
Recovery percentage change	$6.0/8.4 \times 100 = 71.4\%$

## Aggregate adjustments

Individual STP transactions are not amended, however aggregate levels may be adjusted at a state/territory by industry level to remove the effect of:

- reporting anomalies which are significant at the state/territory by industry level, and
- large organisation onboarding.

Aggregate adjustments are applied to the applicable state/territory by industry levels. The adjustments in each release are:

- calculated individually for each state/territory by industry level, and
- removed as the underlying data becomes more complete, or the adjustment is no longer required.

Currently, it is not possible to calculate individual adjustments for all output groups, hence the adjustments applied at a state/territory by industry are also applied equally to all component indexes (such as state/industry by age group or sex or employment size).

Aggregate level adjustments can also affect the relative proportion of characteristics. The effect is more pronounced around large organisation onboarding events (where they are dominant in their state and industry).

## Large organisation onboarding

The ABS reviewed and updated the method used to account for large organisation onboarding in the 8 September 2022 release. Where existing large employers commence reporting through STP for the first time, the ABS determines when the employer first appears in the dataset and adjusts underlying jobs and wages to the start of the time series. This ensures that weekly estimates best reflect change in the labour market over time through payment activities, rather than changes in the uptake of STP reporting. The updated method reduced the impact of adjustments on underlying characteristics distributions, particularly after the onboarding event, and are a step toward the future release of levels.

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## Updating characteristic variables

Weekly payroll jobs and wages indexes are available for a combination of employer characteristics (industry, employment size and sector) and jobholder characteristics (state and region of residential address, age, and sex). These characteristics are populated from variables found in the snapshots of the ABS Business and ATO Client Registers. These Registers are described in more detail in the [Glossary \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-17-september-2022#glossary\)](/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-17-september-2022#glossary) and [How data are collected \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-17-september-2022#how-data-are-collected\)](/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-17-september-2022#how-data-are-collected) (Other data sources) sections of this release.

The snapshot vintage, frequency of update and refresh timing can differ and are described further below.

### Employer variables

#### ABS Business Register snapshots

Up until the 6 July 2021 release, a March 2020 ABS Business Register (ABSBR) snapshot was used to determine the industry and employment size of a jobholder's employer. In the 6 July 2021 release, the March 2021 ABSBR snapshot was used to update employer variables back to the week ending 29 August 2020 (also known as the transition point).

#### ABS Business Register (ABSBR) snapshots used within series

ABS Business Register snapshot	Reference period start	Reference period end
March 2020	Week ending 4 January 2020	Week ending 19 June 2021
March 2021	Week ending 29 August 2020	Present

Some indexes of employer characteristics have a visible change in levels at the transition point. The ABS is working on a method to smooth this change, which will be applied in a future release. Consequently, users should exercise caution when comparing week-on-week change and index levels for industry and employment size across the transition point. More information on the changes around the transition point are documented in a historical [Methods review \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-17-july-2021#methods-review\)](/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-17-july-2021#methods-review) section.

Once an employers' payroll job is allocated to an employer characteristic it is held constant until the next snapshot, when missing values will be populated and existing values refreshed (if they have changed). Employers whose employer characteristics can't be linked

or derived from the latest ABSBR snapshot are assigned an 'unknown' category for the relevant employer characteristic. As the March 2021 ABSBR snapshot ages, the proportion of records with unknown industry and employment size is expected to increase. The ABS anticipates that snapshots will be refreshed on at least an annual basis, to enable a regular update of employer characteristics and minimise the number of unknowns.

## **Determining employer characteristics of newly reported payroll jobs**

In the 9 December 2021 release, the method used to determine employer characteristics of payroll jobs as they are added to the series was also updated.

Newly reported payroll jobs are either part of two population groups (profiled and non-profiled), and the assignment of employer characteristics depends on which population group the employer falls within. For non-profiled businesses, employer characteristics match those of the business' Australian Business Number (ABN). The remainder of payroll jobs are part of the profiled population. These payroll jobs are assigned to a Type of Activity Unit (TAU), and conceptual modelling is used to predict and assign suitable employer characteristics (industry, employment size and sector) to each payroll job.

The updated allocation method determining employer characteristics saw payroll jobs assigned to more representative industries, enhancing statistical quality. More information on the changes as a result of the updated process are documented in a historical [Methods review \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-13-november-2021#methods-review\)](#) section.

## **Sector**

Employer characteristics have been expanded to include a public/private sector variable throughout the time series. The release of 7 October 2021 includes the first set of sector indexes, payroll jobs by selected private sector industries. Private sector indexes are included for industries where the payroll jobs in the private sector are more than 80% of all payroll jobs. Industries not included in the sector tables are Electricity, gas, water and waste services; Public administration and safety; Education and training; and Health care and social assistance.

It is intended that both private and public sector by industry indexes and private and public sector by state and territory indexes will be released in the future. The current method of applying adjustments, for anomalous reporting and commencement of employer reporting through STP, does not differentiate on sector. While there is a small impact in indexes where the private sector dominates, the adjustment method requires enhancement to allow for more granular application and more accurate representation of change for both private and public sector indexes (for all industries and at state and territory levels).

## **Jobholder characteristics**

### **Determining jobholder characteristics**

Jobholder characteristics used in these estimates are sourced from both the ATO Client Register and STP data. A limited set of characteristics are drawn directly from the STP data, which are received weekly, whereas most characteristics are based on (or, in time, replaced by) information from annual snapshots of the ATO Client Register. These snapshots reflect a historical point-in-time.

To reduce the volatility in fluctuating characteristics, jobholder variables are held constant between snapshot updates. While the date of birth variable is held constant, the jobholder's age (as derived from date of birth) continues to be updated at the start of a jobholder's birth month each year.

STP records whose jobholder characteristics cannot be determined from STP or the Client Register snapshot are assigned an 'unknown' category for the relevant jobholder characteristic. As persons join the workforce or register with the ATO for the first time, the Client Register snapshot becomes outdated and the number of payroll jobs with an unknown characteristic can increase. Proportions of unknown age and residential geography (state or territory) remain small over time, as they can also be derived from STP data.

However, the proportion of unknown sex (which is only sourced from the Client Register), and sub-state geography is expected to increase over time as the snapshot ages. The effect of the increasing number of unknowns, and level of revisions for various jobholder characteristics is explained in detail in a historical [Methods Review \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-12-february-2022#methods-review\)](https://www.abs.gov.au/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-12-february-2022#methods-review).

### **ATO Client Register snapshots**

Jobholder variables such as date of birth (from which age is derived), sex and residential geography (including sub-state region) are updated from the annual Client Register snapshot. Up until the 10 March 2022 release, a mid-2020 ATO Client Register snapshot was used to assign sex, age and residential geography characteristics. In the 10 March 2022 release, an updated mid-2021 snapshot of the ATO Client Register was used to refresh jobholder variables throughout the time series.

## Client Register snapshots used within series

Client Register snapshot	Reference period start	Reference period end
Mid-2019	Week ending 4 January 2020	Week ending 27 June 2020
Mid-2020	Week ending 4 July 2020	Week ending 26 June 2021
Mid-2021	Week ending 3 July 2021	Present

The transition point for these updates using the Client Register snapshots, is at the change in financial year as:

- the STP reporting is financial year based, ensuring jobholder characteristics are held constant across each STP reporting year, and
- the annual ATO Client Register snapshot is taken in July each year, aligning the update point to that of the snapshot.

Some jobholder characteristics indexes have a visible change in levels at the transition point between ATO Client Register snapshots. This is particularly visible for geography, where changes in residential addresses from across a year will currently all be reflected at a single point. The ABS is developing a smoothing method to remove the visible transition between snapshots, particularly to improve the longer time series comparability of geography indexes.

The ABS anticipates that snapshots will be refreshed on an annual basis, to enable regular update of jobholder characteristics and minimise the number of unknowns.

## Inclusion of unknown characteristics

STP data is linked to other information held by the ABS to derive demographic and business characteristics such as age group, sex, geography and industry. If a specific characteristic cannot be linked or derived, and does not appear on the STP file, it is assigned an 'unknown' category (for that characteristic).

Records with 'unknown' characteristics are included in the calculation of index totals for that category. As 'total' and 'component' indexes are calculated independently, the inclusion of records with 'unknown' characteristics in a 'total' index can result in independent movement from 'component' indexes. For example, the 'total' index of Persons is calculated from the combined levels of Males, Females and 'unknown' (persons for whom a Male/Female sex cannot be determined). As a result, the Persons index can move independently from Male and Female indexes, which do not include 'unknown' persons. While the proportion of unknown characteristics vary by characteristic, their impact will be compounded in components of finer indexes (such as in State and territory by sex by age group).

## Proportion of unknown characteristics

Records with 'unknown' characteristics are excluded from the calculations of proportions included in the [Distribution of characteristics \(/statistics/labour/jobs/weekly-payroll-jobs-and-wages-australia/week-ending-17-september-2022#distribution-of-characteristics\)](/statistics/labour/jobs/weekly-payroll-jobs-and-wages-australia/week-ending-17-september-2022#distribution-of-characteristics) section of the release.

The proportions of 'unknown' characteristics at mid-September 2022 are:

- almost no payroll jobs have an unknown state or territory,
  - less than 0.4% of payroll jobs have an unknown age,
  - less than 3.5% of payroll jobs have an unknown industry, and
  - less than 3.6% of payroll jobs have unknown sex.
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These estimates are also affected by the dynamic nature and source of data. The impact on accuracy and coherence with other ABS labour statistics are described below.

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## Accuracy

STP is a dynamic administrative data source, hence these estimates may be subject to the following sources of error:

- Conceptual misalignment - The Australian tax system is purpose-built and complex, and in some cases it is difficult to determine how a particular STP item should be used to describe impact on payroll jobs and wages. While all care is taken, some income items are subject to this type of validity error. Coherence with other sources indicates that this has a low impact on the aggregate series.
  - Reporting error - This is likely to be present in both employee and employer information used. While only the most significant reporting errors are identified or adjusted, some reporting errors may remain. These errors are considered to have a low impact on the aggregate series given their coherence with other similar statistics.
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## Coherence

There are differences between these estimates and similar statistics produced by the ABS. When compared to other ABS sources, the change in payroll jobs and wages paid in these estimates may differ due to differences in the concepts, scope and methodology used. For example, these estimates:

- contain a combination of administrative data collected for taxation purposes from employers, whereas other ABS data sources are compiled for the explicit purpose of producing statistics,

- exclude unreported cash in hand payments which may be included in household and business surveys,
  - may include information relating to a reference week, rather than a particular point in time,
  - are not yet adjusted with respect to seasonality, unlike other Labour Force releases,
  - provide a payroll jobs measure whereby those people who hold more than one job at a time (i.e. secondary jobs) are counted in each job, whereas each person is counted once in the employed persons measure in the Labour Force survey, and
  - do not account for hours worked, hours paid for, job attachment where a payment has not been made, or jobholders temporarily stood down without pay, or employment status of employees (i.e. full time or part time), which are considerations in the Labour Force survey measures. For further information, see [Differences to Labour Force employment statistics \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-17-september-2022#differences-to-labour-force-employment-statistics\)](https://www.abs.gov.au/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-17-september-2022#differences-to-labour-force-employment-statistics).
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## How data are released

All estimates are presented for weeks ending on a Saturday.

## Summary of outputs

Each release contains both payroll jobs and total wages indexes and percentage change movements. Estimates are available at the national, state and territory and [Australian and New Zealand Standard Industry Classification \(ANZSIC\) \(https://www.abs.gov.au/ausstats/abs@.nsf/mf/1292.0\)](https://www.abs.gov.au/ausstats/abs@.nsf/mf/1292.0) division by selected jobholder and employer attributes. Australian Statistical Geography Standard sub-state regions (Statistical Area 4, Statistical Area 3 and Greater Capital City Statistical Area) and ANZSIC subdivision estimates are also updated in each release.

Levels for jobs and wages are not available for release. The payroll jobs index provides a measure of changes in jobs over time since the week ending 14 March 2020. Information on levels for jobs are best sourced from estimates of filled jobs from [Labour Account Australia \(/statistics/labour/labour-accounts/labour-account-australia/latest-release\)](https://www.abs.gov.au/statistics/labour/labour-accounts/labour-account-australia/latest-release) and estimates of employed persons from [Labour Force, Australia \(https://www.abs.gov.au/statistics/labour/employment-and-unemployment/labour-force-australia/latest-release\)](https://www.abs.gov.au/statistics/labour/employment-and-unemployment/labour-force-australia/latest-release). More information is included in [Differences to Labour Force employment statistics \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-17-september-2022#differences-to-labour-force-employment-statistics\)](https://www.abs.gov.au/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-17-september-2022#differences-to-labour-force-employment-statistics).

The data underlying these estimates are revised in each release and reflected in percentage change movements and indexes. See [Data variability and revisions \(/methodologies/weekly-](https://www.abs.gov.au/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-17-september-2022#differences-to-labour-force-employment-statistics)

[payroll-jobs-and-wages-australia-methodology/week-ending-17-september-2022#data-variability-and-revisions](#)) for more detail.

## Time series estimates

The estimates are presented as an original series only. Seasonally adjusted and trend estimates are not yet available. A number of years of data will be required before seasonal patterns can be observed and adjusted for.

The calendarisation and imputation methodologies applied to the estimates account for calendar related variations, such as the number of days in a month, and different payment frequencies.

## Privacy and confidentiality

Legislative requirements to ensure privacy and secrecy of this data have been followed. Only those authorised under the Australian Bureau of Statistics Act 1975 have been allowed to view data about any particular firm in conducting these analyses. In accordance with the Census and Statistics Act 1905, results have been confidentialised to ensure that they are not likely to enable identification of a particular person or organisation.

All personal information is handled in accordance with the Australian Privacy Principles contained in the Privacy Act 1988. For more information, see [ABS Privacy \(/about/legislation-and-policy/privacy/privacy-abs\)](#).

## More information

For more information on this methodology email [labour.statistics@abs.gov.au](mailto:labour.statistics@abs.gov.au) (<mailto:labour.statistics@abs.gov.au>).

## Data variability and revisions

Weekly Payroll Jobs and Wages in Australia estimates are derived from data collected via the STP system, which effectively supports employer reporting obligations and ATO operational requirements through enabled software.

STP was not primarily designed to support the production of statistics, hence some inherent characteristics contribute to variability in the estimates and revisions between releases.

Payroll jobs and wages estimates (including percentage change movements and indexes) are revised in each release across the time series. Revisions primarily relate to the receipt of more complete STP data over time and have the greatest impact on the most recently reported information. Over time, as more employer-reported data is received, the size of



revisions usually decreases. Users should therefore exercise caution when focusing on change in the most recent weeks of data, as this period sees greater levels of revision in subsequent releases.

Aside from more complete reporting there are other factors which can influence the size, timing, duration and specificity of revisions.

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## Seasonality

These estimates are presented as an 'original' data series, and do not include seasonally adjusted or trend data time series found in other labour statistics releases (e.g. Labour Force).

STP is a relatively new program (and data source). Generally, three to five years of data are required before good seasonally adjusted data can be produced, hence it is not yet possible to produce a seasonally adjusted series (with seasonal elements removed) or trend series (with both the seasonal elements and irregular fluctuations removed). This means that variations in these estimates may reflect seasonal changes in the labour market in addition to COVID-19 related impacts in the economy.

Seasonal characteristics may be seen:

- around national public holidays, where increases in the total wages series are evident in industries where penalty rates are paid,
- ahead of the Christmas period, where considerable labour market activity in a range of industries increases payroll jobs and wages,
- across school holiday periods, where some industries experience lower business activity. This is particularly pronounced in the holiday period after Christmas, resulting in a decrease in the national payroll jobs and total wages series,
- in industries where periodic bonuses are paid. While bonuses may be paid at any time during the year, they often have an industry pattern. For example, the effect of bonus payments is seen in the total wages series in the Mining industry around February/March and August/September, and around March and September in the Financial and insurance services industry.

As seasonal characteristics are further identified in these data, this list will be expanded.

### **Agriculture, forestry and fishing industry**

The Agriculture, forestry and fishing industry is subject to higher rates of week-on-week change in the payroll jobs and wages series than other industries. This is primarily due to greater peaks and troughs caused by seasonal factors that affect employment such as harvesting or shearing. Employers in this industry have also had STP reporting concessions which permit them to report on a less frequent basis than each pay event. These

concessions ceased at the end of June 2021.

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## Reporting variability

Wages estimates are subject to a higher degree of reporting seasonality (due to seasonal variation in payments, changes in working hours and overtime) and revisions than the payroll jobs estimates. While the ABS accounts for employees being paid with different frequencies (weekly, fortnightly etc.) there are periods where additional reporting activity is more common, which may flow through to published estimates.

### End of financial year

Payroll jobs and wages data during June and July see increased seasonality in employer reporting, due to:

- employers finalising their year to date employee earnings information,
- a reset of financial year in payroll systems, and
- end of financial year bonus and commission payments.

These factors can translate to a higher variation in estimates over this period, as well as revisions, particularly in wages estimates.

In addition, June 2021 saw the conclusion of many STP reporting concessions which have contributed additional index movement around the end of financial year (particularly for smaller employers).

### Re-submission of historical pay periods

The dynamic nature of STP data can result in revisions to payroll jobs and wages indexes, caused by the re-submission of payroll data for historical pay periods (including prior financial years) by STP-enabled employers. When re-submission results in an update to payroll jobs and wages levels at the index base reference period (of 14 March 2020), a revision across the index time series in component indexes may be observed.

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## Revisions in sub-populations

The size of revisions and the period over which they apply can vary between indexes. Some component indexes are subject to higher than usual levels of revision, over a longer period. For example, the employment size indexes show both a higher incidence and duration of revision. This is most noticeable in the small employers group (those with under 20 employees). Characteristics which contribute to revisions in the estimates for this group are:

- higher levels of reporting seasonality,

- a greater incidence of longer payment periods (such as quarterly), and
- graduated STP onboarding (the effect of which was more prevalent up to July 2021).

The ABS is currently investigating methods to reduce the future level of revisions in this series. In the interim, to provide more stability at the end point of all employment size indexes, a month lag in the reference week is in place.

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## Acknowledgement of source

These estimates are based on ABR data supplied by the Registrar to the ABS under A New Tax System (Australian Business Number) Act 1999 and tax data supplied by the ATO to the ABS under the Taxation Administration Act 1953. These require that such data is only used for the purpose of carrying out functions of the ABS. No individual information collected under the Census and Statistics Act 1905 is provided back to the Registrar or ATO for administrative or regulatory purposes. Any discussion of data limitations or weaknesses is in the context of using the data for statistical purposes, and is not related to the ability of the data to support the ABR or ATO's core operational requirements.

The ABS would like to acknowledge the critical support from the Australian Taxation Office (ATO) in enabling the ABS to produce these statistics.

## Differences to labour force employment statistics

The Weekly Payroll Jobs and Wages in Australia estimates are a complementary insight to Labour Force statistics on employment and unemployment, which provide a longstanding and comprehensive view of the Labour market.

The two releases generally show similar national movement in jobs and employment over time, however at the state/territory and industry levels, the changes can be more pronounced. The differences in concepts, scope and methodology used to produce these statistics can affect their interpretation as economic measures. Some factors that explain differences at the state/territory and industry levels include:

- Real world factors - scope of STP reporting, multiple jobholding and seasonality, and
- Measurement factors - variability in sampling, reporting and classification.

The following key differences should be considered when comparing these statistics:

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	Weekly Payroll Jobs and Wages in Australia	Labour Force statistics
Focus of the	Jobs.	People.

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## Weekly Payroll Jobs and Wages in Australia

## Labour Force statistics

statistics		
Coverage	Around 10 million payroll jobs for which a payment was reported to the ATO through STP.(a)	All usually resident civilian people aged 15 and over (around 21 million people, of whom 13 million are employed).
	Almost all large employers (with 20 or more employees) and eligible small employers are reporting through STP.	Statistics are based on a large survey sample of around 50,000 people responding every month.
	Coverage increased steadily from January 2020 to July 2021 as employers started reporting through STP.	
Revisions	Revised every release as payroll periods are completed (with imputed data replaced with actual data when received). This ensures comparability over time.	Small revisions every 3 months, aligned with new population statistics.
	Revisions to jobholder and employer characteristics from periodic updates.(b)	
Types of employment	Employee jobs who are paid through a STP-reported payroll.  Also includes a small number of jobs for non-employees who are paid through STP-reported payrolls.	All employed people, including: Employees (including Owner managers of incorporated enterprises); Owner managers of unincorporated enterprises; Contributing family workers.
Whether paid	Only includes payroll jobs where a payment was reported to the ATO through STP or there is an established payment pattern.	Includes all employed people who were paid or who had a job but weren't paid (on unpaid leave, temporarily stood down without pay, etc.).
Multiple job holding	Each job is counted separately, irrespective of whether it is worked by a multiple jobholder. People who work multiple jobs may be counted multiple times.	Each person is only counted once, and job characteristics (other than hours) relate to a person's main job.
	Industry is identified for each job, not just the main job and the level of multiple jobholding can vary between industries.	Around 6% of employed people are multiple jobholders, particularly young people.
Location	Residence of the jobholder, based on address held by the ATO.	Place of usual residence of people at the time of the survey.

	Weekly Payroll Jobs and Wages in Australia	Labour Force statistics
Industry	Determined from the business' industry on the ABS Business Register. Industry coding is applied to all jobs held by multiple jobholders.	Self-reported by the person at the time of the survey. Industry is coded for the main job only.
Time series	Original index series. No seasonally adjusted or trend series are available yet.	Original and seasonally adjusted (trend is currently suspended, during the COVID-19 period).

- a. A compositional breakdown of payroll jobs can be found in [Characteristics spotlight: 2022 \(/articles/characteristics-spotlight-2022\)](#).
- b. The update of jobholder and employer characteristics can be found in [How data are processed \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-17-september-2022#how-data-are-processed\)](#).

Labour Force analysis of employment versus payroll jobs up to August 2020 can be found in [Strong employment growth for non-employees \(/articles/strong-employment-growth-non-employees\)](#). More information on the differences between Weekly Payroll Jobs and Wages estimates and similar ABS statistics are detailed in the Coherence section of [How data are processed \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-17-september-2022#how-data-are-processed\)](#).

## History of change

A timeline of recently implemented methodological changes are listed below for easy reference.

### By release date

Week ending 12 February 2022

- Update of jobholder characteristics - revisions to all sex, age and geography indexes as noted in [Methods review \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-12-february-2022#methods-review\)](#)

Week ending 13 November 2021

- Update of employer characteristics - refinement of Job-TAU allocation process as noted in [Methods review \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-13-november-2021#methods-review\)](#)

Week ending 11 September 2021

- [Update to imputation retention \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-11-september-2021#methods-review\)](/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-11-september-2021#methods-review) - the imputation retention threshold updated from 8 pay periods to 16 weeks

Week ending 31 July 2021

- [Change in lag between reference week and release date \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-31-july-2021#how-data-are-processed\)](/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-31-july-2021#how-data-are-processed) - reducing imputation in the latest weeks of data, as noted in the Imputation section

Week ending 19 June 2021

- [Update of employer characteristics \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-19-june-2021#methods-review\)](/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-19-june-2021#methods-review) - ABS Business Register snapshot update to industry and employment size variables

Week ending 10 April 2021

- [Historical imputation \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-10-april-2021#how-data-are-processed\)](/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-10-april-2021#how-data-are-processed) - period over which historical imputation is removed for terminated employees changed from 3 to 8 pay periods

Week ending 27 March 2021

- [Update of jobholder characteristics \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-27-march-2021#methods-review\)](/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-27-march-2021#methods-review) - Client Register snapshot update to sex, age and geography variables

Week ending 30 January 2021

- [Imputation update \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-30-january-2021#methods-review\)](/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-30-january-2021#methods-review) - to deliver a reduced magnitude of future revisions, particularly in the most recent week's data

Week ending 16 January 2021

- [Age derivation update \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-16-january-2021#data-limitations-and-revisions\)](/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-16-january-2021#data-limitations-and-revisions) - a person is aged at the start of their birthday month instead of redefining age each reference week

Week ending 2 January 2021

- Update of characteristics variables - Employers with unknown industry included in estimates, as noted in [Data limitations and revisions \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-2-january-2021#data-limitations-and-revisions\)](/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-2-january-2021#data-limitations-and-revisions)

Week ending 14 November 2020

- [Week on week revisions \(/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-14-november-2020#data-limitations-and-revisions\)](/methodologies/weekly-payroll-jobs-and-wages-australia-methodology/week-ending-14-november-2020#data-limitations-and-revisions) - persons aged under 15 years excluded from the under 20s age group

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## Glossary

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### Show all

#### Accrual basis

Recording wages when they are earned, accrued or incurred regardless of when payment is made or received.

#### Australian Bureau of Statistics Business Register

A register of all Australian businesses and organisations maintained by the Australian Bureau of Statistics (ABS) for the purpose of producing statistical frames and business demography outputs. It contains identifying and classificatory data for each business and organisation.

Information to populate the ABS Business Register is largely sourced from the Australian Business Register.

The ABS Business Register consists of two subpopulations, the profiled population and the non-profiled population. The ABS Business Register uses an economic units model to describe the characteristics of businesses and the structural relationships between related businesses.

#### Australian Business Number

A unique identifier. To be entitled to an Australian Business Number (ABN), an organisation must be one or more of the following:

- a company registered under the Corporations Act 2001
- an entity carrying on an enterprise in Australia
- a government entity
- a non-profit sub-entity for Goods and Services Tax purposes
- a superannuation fund.

A non-resident entity may be entitled to an ABN if they are carrying on an enterprise in Australia and/or, in the course of carrying on an enterprise, the entity makes sales that are connected with Australia.

### **Australian Business Register**

The data store containing details about businesses and organisations that have registered for an Australian Business Number. More information can be found on the [ABR website \(https://abr.gov.au/\)](https://abr.gov.au/).

### **Australian Tax Office person-level Client Register**

A register of persons that have interacted with the Australian Tax Office (ATO) and have been issued with an Australian Tax File Number (TFN). The ATO person-level Client Register comprises demographic information such as sex, date of birth, and residential address.

### **Cash basis**

Recording the wage payment in the pay period when the payment was received by the employee.

### **Commencement and termination dates**

Commencement and termination dates associated with each job as reported through Single Touch Payroll.

### **Employee**

Persons who work for a private or public sector employer, where the employee has received payment in the reference week through Single Touch Payroll (STP) enabled software and reported to the Australian Taxation Office (ATO).

### **Employer**

An organisation with an Australian Business Number that provides employment income to one or more people, and reports through the ATO STP system.

### **Enterprise group**

An institutional unit covering all the operations within Australia's economic territory of legal entities under common control. Control is defined in Corporations legislation. Majority ownership is not required for control to be exercised. An enterprise group may have one or more TAUs.

### **Geography**

Based on residential address as sourced from either the ATO Client Register or STP data.



See also 'Greater Capital City Statistical Area' and 'Statistical area' entries. For more information, see the [Australian Statistical Geography Standard \(ASGS\): Volume 1 – Main Structure and Greater Capital City Statistical Areas \(https://www.abs.gov.au/AUSSTATS/abs@.nsf/ProductsbyCatalogue/871A7FF33DF471FBCA257801000DCD5F?OpenDocument\)](https://www.abs.gov.au/AUSSTATS/abs@.nsf/ProductsbyCatalogue/871A7FF33DF471FBCA257801000DCD5F?OpenDocument).

## **Greater Capital City Statistical Area**

Geographical areas built from Statistical Areas Level 4 (SA4), designed to represent the functional extent of each of the eight State and Territory capital cities. Greater capital city statistical areas (GCCSA) are presented with the 'rest of state' region to cover the whole of Australia without gaps or overlaps. The GCCSA is named according to the city it represents, for example, Greater Sydney. The remainder of the state or territory is named rest of state/territory, for example, Rest of New South Wales (NSW).

## **Industry**

A homogenous grouping of economic activities undertaken to produce goods and services. The [Australian and New Zealand Standard Industrial Classification \(https://www.abs.gov.au/ausstats/abs@.nsf/mf/1292.0\)](https://www.abs.gov.au/ausstats/abs@.nsf/mf/1292.0) is used to classify an entity to an industry based on its dominant activity.

## **Industry division**

The broadest grouping of industries within the Australian and New Zealand Standard Industrial Classification. The main purpose of the industry division level is to provide a limited number of categories, which give a broad overall picture of the economy. There are 19 mutually exclusive divisions. For more information see the [Australian and New Zealand Standard Industrial Classification \(https://www.abs.gov.au/ausstats/abs@.nsf/mf/1292.0\)](https://www.abs.gov.au/ausstats/abs@.nsf/mf/1292.0).

## **Industry subdivision**

The second broadest grouping of industries within the Australian and New Zealand Statistical Industrial Classification. Industry subdivisions are built up from the industry groups which, in turn, are built up from industry classes. For more information see the [Australian and New Zealand Standard Industrial Classification \(https://www.abs.gov.au/ausstats/abs@.nsf/mf/1292.0\)](https://www.abs.gov.au/ausstats/abs@.nsf/mf/1292.0).

## **Job**

See payroll job.

## **Non-profiled population**

The vast majority of businesses included on the ABSBR are in the non-profiled population. Most of these businesses have simple structures that are suitable for ABS statistical

purposes at the Australian Business Number (ABN) level. For the non-profiled population, one ABN equates to one business.

### **Not available (NA)**

Statistic is not available. This can be to protect the confidentiality of data providers or to prevent misinterpretation of statistics due to poor quality.

### **Owner-manager of unincorporated enterprises (OMUE)**

A person who operates their own unincorporated enterprise, which does not possess a separate legal identity to that of its owner(s), or engages independently in a profession or trade.

OMUEs can also be referred to as self-employed. Owner managers of unincorporated enterprises are not included in these estimates as they are not in scope of STP-enabled software reporting to the ATO.

Unincorporated enterprises are further defined in the Type of Legal Organisation (TOLO) classification section of the [Standard Economic Sector Classifications of Australia \(SESCA\) release \(/statistics/classifications/standard-economic-sector-classifications-australia-sesca/latest-release#type-of-legal-organisation-tolo-classification\)](https://statistics/classifications/standard-economic-sector-classifications-australia-sesca/latest-release#type-of-legal-organisation-tolo-classification).

### **Payroll job**

A payroll job is a relationship between an employee and their employing enterprise, where the employee is paid in the reference week through STP-enabled payroll or accounting software and reported to the ATO. Where an employee is paid other than weekly, the established payment pattern is used to identify jobs in weeks outside the payment week.

### **Profiled population**

For a small number of businesses, the ABN unit is not suitable for ABS economic statistics purposes and the ABS maintains its own economic units structure through direct contact with businesses. These businesses constitute the profiled population and are represented by Type of Activity Units (TAUs). This population consists of large, complex and diverse groups of businesses (known as enterprise groups).

### **Public/Private sector**

The Public/Private classification divides the economy into two sectors: Public (government units and units controlled by government); and Private (all other units). For more information, see the [Standard Economic Sector Classifications of Australia \(SESCA\) \(/statistics/classifications/standard-economic-sector-classifications-australia-sesca/latest-release#\)](https://statistics/classifications/standard-economic-sector-classifications-australia-sesca/latest-release#) release.

## **Single Touch Payroll**

The Single Touch Payroll (STP) system sends taxation and superannuation information from a business' STP-enabled payroll or accounting software to the ATO as a business runs its payroll.

## **Sex**

Self reported sex (i.e. male/ female) of a person as reported through the ATO taxation system. Categories other than male or female are not published separately in this release but are included in published totals.

## **Statistical area level 3**

Statistical area level 3 (SA3) regions are designed to provide a regional breakdown of Australia. They generally have a population of between 30,000 and 130,000 people. In regional areas, SA3s represent the area serviced by regional cities that have a population over 20,000 people. In the major cities, SA3s represent the area serviced by a major transport and commercial hub. They often closely align to large urban Local Government Areas (e.g. Gladstone, Geelong). In outer regional and remote areas, SA3s represent areas which are widely recognised as having a distinct identity and similar social and economic characteristics.

## **Statistical area level 4**

Statistical area level 4 (SA4) regions are specifically designed to reflect labour markets within each state and territory within population limits. In regional areas, SA4s tend to have lower populations (100,000 to 300,000), while in metropolitan areas, SA4s tend to have larger populations (300,000 to 500,000).

## **Type of activity unit (TAU)**

A TAU consists of one or more business entities, sub entities or branches of a business that can be grouped according to production activity, and can report a minimum set of data items. TAUs are classified according to the industry of their main activity. The relationship between TAUs and their associated legal entities (ABNs) may be one-to-one, many-to-one, or one-to-many.

## **Type of legal organisation**

All legal entities on the ABS Business Register are classified according to their type of legal organisation, of which there are three types:

- incorporated private sector entities
- unincorporated private sector entities

- public sector entities.

The type of legal organisation indicates whether a business is part of the private or public sector and the type of ownership structure. For more information see the [Standard Economic Sector Classifications of Australia \(SESCA\) release \(/statistics/classifications/standard-economic-sector-classifications-australia-sesca/latest-release#type-of-legal-organisation-to-lo-classification\)](/statistics/classifications/standard-economic-sector-classifications-australia-sesca/latest-release#type-of-legal-organisation-to-lo-classification).

## Wages

Wages include salary payments and allowances, labour hire payments and foreign income, as well as the value of payments in kind (where a fringe benefit amount is recorded). Bonuses are typically included where they are reported in the same field as normal payments. Wages are calculated as gross amounts, prior to taxation and deductions.

Wages exclude payments to employee's superannuation as well as severance and termination payments. Wages are only available for payroll jobs and do not include income from own businesses or other sources.

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## Abbreviations

<b>ABN</b>	Australian Business Number
<b>ABR</b>	Australian Business Register
<b>ANZSIC</b>	Australian and New Zealand Standard Industrial Classification
<b>ASGS</b>	Australian Statistical Geography Standard
<b>ATO</b>	Australian Taxation Office
<b>FBT</b>	fringe benefits tax
<b>GCCSA</b>	Greater Capital City Statistical Area
<b>NA</b>	Not Available
<b>pts</b>	Index points
<b>SA3</b>	Statistical Area Level 3
<b>SA4</b>	Statistical Area Level 4
<b>STP</b>	Single Touch Payroll
<b>TFN</b>	Tax File Number